DOCUMENT RESUME

ED 242 937 CE 038 775

AUTHOR Campbell, Paul B.
TITLE Curriculum and Aspirations as Elements of Transition Patterns between Schooling and Work.
PUB DATE Apr 84
NOTE 23p.; Paper presented at the Annual Meeting of the American Educational Research Association (68th, New Orleans, LA, April 23-27, 1984).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavior Theories; Career Education; *Curriculum; Educational Attainment; Educational Research; *Education Work Relationship; Expectation; Goal Orientation; High Schools; *Occupational Aspiration; Secondary Education; *Student Educational Objectives; Theories
IDENTIFIERS Curriculum Choice; Dual Economy Theory; Economic Theory; *Human Capital Theory; Status Attainment Theory

ABSTRACT

A study focused on determination of the tenability of competing hypotheses about the effect of curriculum pathway in high school upon occupational aspirations. Data were provided by a sample of respondents in the National Longitudinal Survey of Labor Market Experience--New Youth Cohort (NLS Youth), supplemented by their high school transcripts. The variables that were considered were suggested by three theoretical positions that offer competing explanations of the aggregate individual behaviors relating to curriculum and aspirations for further education and occupational status: human capital theory, status attainment theory, and dual economy theory. Several regression models were estimated, using different definitions of the dependent variables. Overall changes in average levels of expectations and aspirations were computed and evaluated. Results suggested that the educational and occupational aspirations may be relatively stable in a broad sense by high school. The results were reasonably consistent with a human capital explanation, did not consistently support the status attainment point of view, and did not suggest the high school as a dual labor market channeling mechanism. (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED242937

CURRICULUM AND ASPIRATIONS AS ELEMENTS OF TRANSITION PATTERNS BETWEEN SCHOOLING AND WORK

Paper presented at the
1984 Meeting of the
American Educational Research Association

New Orleans
April, 1984

Paul B. Campbell

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

P Campbell

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CE038775

The National Center for Research in Vocational Education
The Ohio State University
Columbus, Ohio

CURRICULUM AND ASPIRATIONS AS ELEMENTS OF TRANSITION PATTERNS BETWEEN SCHOOLING AND WORK

Paul B. Campbell

The National Center for Research in Vocational Education
The Ohio State University

Objectives

The objectives of this study were to review the available evidence in a large-scale national longitudinal data base to determine the tenability of competing hypotheses about the effect of curriculum pathway in high school upon expectations for educational attainment and upon occupational aspirations.

Perspectives

There are three major theoretical positions that offer competing explanations of the aggregate individual behaviors relating to curriculum and aspirations for further education and for occupational status. They are human capital theory, status attainment theory, and dual economy theory.

Human capital theory postulates that the aggregate behavior of students is consistent with a set of rational decisions regarding the investment of school time in a curriculum that will provide the maximum return, given each student's assessment of his or her abilities and preferences (see, for example Ghez and Becker 1975). Status attainment theory postulates that a somewhat diverse group of "significant others" are the major influence on the student's choice (see, for example, Colclough and Horan 1983). Dual economy theory postulates two separate labor

markets, one containing the less desirable, less rewarding jobs, into which workers are channeled without regard for their individual abilities, competencies, and desires (see, for example, Hodson and Kaufman 1982). Some proponents of this theory maintain that the high school curriculum is such a channeling device, calculated to stifle aspirations or to enlarge them, depending upon which labor market is the goal (see, for example, Bowles and Gintis 1976).

In an attempt to better understand the "real world" operating mechanisms that are frequently shrouded by the polemics of the debates surrounding the differing points of view, this study considered the phenomenon of changes in both educational and occupational aspirations. When educational aspirations were being considered, the fundamental unit of measurement was the student's expectation of years to be completed, ranging from twelve or less to seventeen or more. When occupational aspirations were being considered, the content (as defined by Scoville 1969) of the job aspired to at age thirty-five was the fundamental unit.

Several regression models were estimated, using different definitions of the dependent variables. Changes in expectations or aspirations were the variables of interest. Overall changes in average level of expectations and aspirations were computed and evaluated. In a set of equations, the level of expectations or aspirations at the twelfth grade were the dependent variables, with the corresponding level at the ninth or tenth grade being entered as an explanatory variable. Other explanatory variables

included curriculum, school characteristics, significant others, and personal characteristics.

Data Source

The data were provided by a sample of respondents in the National Longitudinal Survey of Labor Market Experience--New Youth Cohort (NLS Youth),* supplemented by their high school transcripts. The sample consisted of those NLS Youth respondents for whom a report of educational and occupational expectations was available in the tenth grade and again in the twelfth grade.

The NLS Youth Cohort is a national probability sample of respondents who ranged in age from 14 to 21 years at the time of their selection in 1978. They were first interviewed in 1979. As each age cohort reached the age of typical graduation from high school, their transcripts were collected. In order to observe change in aspirations or expectations as potentially influenced by high school curriculum, the earliest available expressions of these aspirations were sought. They were available for those respondents who were in ninth or tenth grade at the time of the 1979 interview. If those respondents had attained or completed twelfth grade by the 1982 interview, a measure of change in aspirations was available.

Table 1 shows the potential sample size for this subsample if age at the time of the 1979 interview is an acceptable proxy for high school grade at that time. On this basis, the roughly

---

*For a detailed discussion of the NLS Youth Cohort and its selection, see Borus et al 1980.

1500 respondents represented in the 18-year-old row and the 1982 column were the pool from whom data might be available. Transcripts were obtained for about 80 percent of this group, reducing the pool to about 1200.* Incomplete transcripts and missing key data on aspirations further reduced the sample to 693 cases for educational aspirations and 588 cases for occupational aspirations. Although many of the incomplete transcripts and missing key data appear to be essentially random occurances that do not affect representativeness in a systematic way, there are two groups that may be either underrepresented, or not represented at all. Incomplete or missing transcripts occur more frequently than the overall average among respondents who change schools frequently. Frequent school changers will therefore be somewhat underrepresented in the reduced sample. High school dropouts will not be likely to have a twelfth grade aspiration score except in the relatively rare case of twelfth graders who drop out during the last semester. Dropouts will therefore be largely underrepresented.

Except for these two reservations, the sample appears to be reasonably representative. An earlier comparison (Campbell, Orth, and Seitz 1981) with an independent sample collected by the Bureau of Labor Statistics showed that the effect of sample reduction due to unavailable and incomplete transcripts did not change the frequencies by race or gender by as much as 2 percent.

---

*Some of the 966 17-year-olds may have graduated but their transcripts were not yet available.

TABLE 1

DISTRIBUTION OF NLS YOUTH BY AGE AND YEAR OF INTERVIEW

Age	1979		1980		1981		1982	
	n	%	n	%	n	%	n	%
14	950	7.5	--	--	--	--	--	--
15	1,563	12.3	967	8.0	--	--	--	--
16	1,561	12.3	1,539	12.7	986	8.1	--	--
17	1,508	11.9	1,508	12.4	1,586	12.5	966	8.0
18	1,634	12.9	1,468	12.1	1,505	12.3	1,510	12.5
19	1,677	13.2	1,546	12.7	1,485	12.2	1,515	12.5
20	1,666	13.1	1,602	13.2	1,585	13.0	1,498	12.4
21	1,690	13.3	1,584	13.0	1,620	13.3	1,557	12.8
22	437	3.4	1,566	12.9	1,592	13.1	1,616	13.3
23	--	--	361	3.0	1,600	13.1	1,577	13.0
24	--	--	--	--	294	2.4	1,582	13.0
25	--	--	--	--	--	--	303	2.5
n over 17	7,104	55.9	8,127	67.9	9,681	79.4	11,158	92.0
Total	12,686	100.0	12,141	100.0	12,195	100.0	12,124*	100.0
(noninterview)**	--	--	(545)	(4.3)	(491)	(3.9)	(562)	(4.4)

*Preliminary est mate. Final number is expected to be available in the fall of 1983.

**Those individuals in the original sample of 12,686 could not be interviewed in a subsequent year.

SOURCE: National Longitudinal Survey of Labor Market Experience, Youth Cohort; Center for Human Resource Research, The Ohio State University.

COMMENTS: The row labelled "n over 17" constitutes the approximate working sample with high school diplomas. Significant labor market experience begins here unless the youth continues postsecondary education. If the youth goes directly to a four year college and graduates, only those over the age of 23 will have time for significant labor market experience. These numbers will all be reduced if high school transcripts are required because these were not collected for those NLS respondents in the military.

Thus, missing data appears to be the major threat to representativeness but no systematic relation to this potential cause has been detected. Of major importance, however, is the inclusion of the principal sample stratifiers in the models, thereby introducing a control for their effects.

Models

Using a data source for a secondary analysis nearly always imposes some constraints on the analysis. In particular, the available data elements may not be in precisely the form needed, or may not include some desirable variables for a more adequate test of the propositions under consideration. One may, however, in a relatively comprehensive set of data like the NLS Youth, expect to find elements that should behave in ways consistent with the expectations generated by the theories.

Variables Suggested by Human Capital Theory

The variables suggested by human capital theory include a measure of ability and an assessment of individual perferences and interests. The ability measure available in a uniform way for the NLS Youth respondents is the Armed Forces Vocational Aptitude Battery (ASVAB). It includes tests of verbal and quantitative development as well as more specific technical information. It was administered to the NLS Youth respondents and scores are available for nearly all of them.

Preferences and interests are shown in part by selection of curriculum in high school. The academic curriculum designation

was based on the respondents' self report if the transcript did not show a significant specialization in a vocational area. The problems of self report of curriculum have been well documented. Campbell, Orth, and Seitz (1981) explored this problem in defining participation in secondary vocational education. They found considerable inconsistency between self report of curriculum and actual courses taken in high school. Their work provided the identification of the vocational curriculum, but similar work on defining the academic curriculum was not available at the time of the study. Therefore the self report, as adjusted, was used.

The definition of vocational participation developed in the study just cited was based upon several concepts describing the involvement of students in vocational studies in the secondary school. Two of these, intensity and proximity, seemed especially useful for an analysis of change in aspirations or expectations. Intensity represents the number of Carnegie units of credit taken in a vocational specialty. As intensity increases, the likelihood of an influence on expectations should also increase. Proximity indicates the period in the high school sequence during which vocational participation occurs. Its score was highest when participation in a specialty occurred in both the eleventh and twelfth grade, and dropped to zero if no vocational participation occurred in those grades. This variable measured participation during the time that curriculum related change was expected to occur, if it did.

A third variable related to a human capital point of view, as reflected in the individual's perception, is attitude toward

school. A positive attitude would suggest that schooling is a relatively lower cost (in personal terms) investment in human capital accumulation, whereas a negative attitude suggests a higher cost. A scale measuring this attitude was administered to the NLS Youth respondents. In summary, the variables that were expected to reflect the expectations or aspirations were the ASVAB scores, the curriculum choice, and the attitude toward school.

Variables Suggested by Status Attainment Theory

Status attainment theory suggests variables that will reflect the influence of significant others. It also hypothesizes that the family status level has a primary contribution that is transmitted through the significant others. Two fairly direct sources in the NLS Youth data address these expectations. Status is reflected in a number of variables. Among them are a measure of family learning environment, parents' educational attainment, and the Duncan Socioeconomic Status (SES) score of the head of the household when the respondent was fourteen. These intercorrelated variables were combined by use of a principal components analysis into a single SES score. Other questions in the interview were directed toward the respondents' perception of the career plans of their peers.

Although not directly suggested by status attainment theory, three other variables might be expected to influence aspirations in a manner consistent with that theory. They are characteristics of the school itself. First is school size, which is related

fairly closely to the urban location of a school, and may thus reflect the orientation of significant others. Another is the proportion of peers of the same ethnic origins. More or less group diversity could provide the opportunity for comparisons that might be positive or negative. The third is the percentage of dropouts in the school during the year of the first interview. This school characteristic might also reflect the nature of potential significant other influence.

Variables Suggested by Dual Economy Theory

These last three variables just discussed overlap considerably with the expected explanations of aspirations from the dual economy point of view. SES likewise is shared with this theoretical perspective. The major contention of the dual economists who see the school as a channeling mechanism, however, would be that following a vocational curriculum would lead to lower expectations. Also, that theory suggests that gender and ethnic origin will influence aspirations because those who are female or minority will not see much chance for successful higher aspirations. Gender and ethnic origin variables are also available in the NLS Youth data.

Table 2 provides a summary of the variables that are included in the models and shows their expected relation to the theoretical positions. These variables served as the explanatory variables in two sets of equations. The first set dealt with educational expectations. The second with occupational expectations. The dependent variables were defined as the final

TABLE 2

RELEVANT THEORY RELATED VARIABLES IN NLS YOUTH

Variable	Human Capital	Status Attainment	Dual Labor Market
Vocational intensity	x		x
Vocational proximity	x		x
School attitude	x	x	x
School size		x	x
SES		x	x
Percent dropouts		x	x
Black male			x
Black female			x
Hispanic male			x
Hispanic female			x
White female			x
Academic curriculum	x		
ASVAB	x		
Friends' aspirations		x	
Percent peers of same race			x

(twelfth grade) aspiration score, and the initial aspiration score entered the equation as an explanatory variable. The educational expectation change scores could vary from a minus five for a respondent who had initially aspired to seventeen years or more and reduced that aspiration to twelve years by the end of high school, to a plus five for a respondent who initially aspired to twelve years or less and raised that aspiration to seventeen years or more. The occupational change scores were based on Scoville's (1969) job content scale. A respondent who aspired to a job with a content score of 1 initially and reduced that aspiration to a job content 5 by the twelfth grade would have a score of -4, whereas a respondent who increased job aspirations from five to 1 would have a score of +4. (Note that the job content scale ranges from a low content value of 5 to a high content value of 1.)

When one uses difference scores, the question of reliability raises justifiable concern. As Stanley (1971, p. 390) has pointed out, however, reliability for group analysis is less critical than is the case when judgement about an individual is to be made. Rogosa and Willett (1983) have also recently established some of the conditions under which difference scores are adequately reliable for analytic use. They point out that as the correlation between true scores at time 1 and time 2 increases, the difference score reliability decreases. For these data, the time 1 --> time 2 correlation for educational expectations is 0.60 and for occupational aspirations it is 0.22. These moderate

to low correlations permit some confidence that reasonable difference score reliability is at least possible. The reliability of individual items on a survey are not usually known, as is the case with the NLS Youth. However, given the fact the data were collected by professionally trained interviewers, it is reasonble to suppose that the responses do indeed represent the perceptions and intention of the respondents at the different points in time, and that change scores can reflect differences in those perceptions and intentions. The equation did not use change scores but rather considered the actual levels of aspirations or expectations.

In sum, the variables suggested by the three theoretical positions (table 2) and available in the NLS Youth data provided the specifications for two equations for the two dependent variables. These equations were based on a general model of the form

$$Y_2 = a + bY_1 + cX + dz + \varepsilon$$

where Y = expectations (aspirations in the case of job content) level at tenth or twelfth grade, depending on the subscript

X = a vector or exogeneous variables influencing expectation levels

Z = a vector of school related variables, including curriculum, influencing expectations

ε = a random uncorrelated error term.

In this application of the model, the variables in the X vector include race, gender, and socioeconomic status. These are expected to influence Y, prior to its measurement in the tenth grade. However, they are at least in part proxies for sets of experiences that individuals may have, and the experience

associated with them may continue to influence expectations between the tenth and twelfth grade. In particular they are expected to be proxies for differing motivations that are played out in part by levels of expectation for education or jobs. The two equations based on this model are discussed in the next section.

Mean Change

Before addressing the equations, the changes in the average levels that were evaluated without controlling for potentially causative influences are discussed. If aspirations are intitially unrestrained (anyone can become President) and begin to conform to reality over time, there should be a predominance of negative change scores, which in turn would be reflected in a negative mean score (given the scale of change, with zero for no change, a positive value for positive change, and a negative value for negative change). This hypothesis was not supported by the data for educational expectations.

The mean change score for educational expectations as defined was 0.426, with a standard error of 0.073. The opposite situation holds for the occupational aspiration change. The mean change for these aspirations was -0.146, with a standard error of 0.051. Interpretation of these opposite trends is not readily obvious. It may simply reflect schooling as an alternative in a slack labor market. Further investigation is imperative.

Regression Results

The coefficients produced by this form of modeling are shown in table 3. The specification resulted in a substantial amount

TABLE 3

LEVEL OF EDUCATIONAL AND OCCUPATIONAL
ASPIRATIONS IN GRADE TWELVE

Variable	Regression Coefficients: Senior Education Expectations	Regression Coefficients: Senior Occupation Expectations
Early Aspirations	0.36513**	0.12243**
Vocational proximity	-0.00912	-0.01569
Vocational intensity	-0.05554	0.00767
School attitude	-0.02018	0.01513
School size	0.00004	-0.00013*
SES	0.02822**	-0.01447*
Percent dropouts	-0.00714	0.00836*
Black male	1.39145**	-0.62375*
Black female	1.10650**	-0.41773*
Hispanic male	0.66731*	-0.30795
Hispanic female	0.89026*	-0.68444**
White female	-0.27230	0.00759
Academic curriculum	0.28419*	-0.13448
ASVAB	0.02732**	-0.01224**
Friends aspirations	0.05213	-0.02378
Percent peers of same race	0.00205	-0.00418
Intercept	7.01079	3.53805
df	671	559
R^2	0.43139	0.13276

NOTE: The occupation scale is inverted; one is high and five is low. Therefore negative coefficients indicate higher job content aspirations.

* Chance probability $\leq$ 0.05

** Chance probability $\leq$ 0.01

of total variance explained (adjusted R^2 = .42) and several variables show acceptable levels of significance.

The interpretation of these results in terms of the theoretical positions is complex because many of the variables might be expected to behave similarly from different theoretical points of view. Human capital theory would suggest that the selection of curriculum was a rational choice. The aspirations or expectations associated with that choice would not be likely to be modified unless new knowledge or information on the ramifications of the choice became available during the period between the sophomore and senior years. One might also expect that the designation of a curriculum choice at an early point in time, if rational, should be associated in a positive way with expectations. That is, a curriculm choice consistent with higer expectations should predict such expectations in a positive way. Further, if school curriculum is seen as a positive medium for developing one's human capital investment, then it would be consistent to expect a more highly positive attitude toward schools to be associated with higher educational expectations. This is relatively weak support for the theoretical position, however, because a student could still have made a rational choice and not find the curriculum positive, or could feel positively toward school for reasons unrelated to educational expectations. Finally, a rational choice of expectations should be consistent with academic ability. Therefore, there should be a positive association between the NLS proxy for such ability, the ASVAB, and level of educational expectations.

The data shown in table 3 demonstrate that four of the five expectations are met, with the remaining one, school attitude, not achieving significance and therefore being judged neutral rather than associated in the expected direction. These results obtain under the conditions that variables reflecting potentially attenuating circumstances are held constant.

In status attainment terms, the transfer of parental status through environomental circumstances and significant others should appear in several ways. The status of parents should obviously be reflected in the socioeconomic index, that in turn should be associated with levels of educational expectations. Friends' aspirations are expected to be an index of the influence of significant others. The school variables are less directly associated with educational expectations in a status attainment sense, but they are reflections of the milieu in which influence operates, and could condition the nature of that influence. High dropout rates could be expected to reduce educational expectations. School attitude might be a reflection of peer influence, and school size a weak approximate index of the degree of personalization available in the school. Of these five variables, only one, SES, shows a significant association with educational expectations. Also, because educational expectations at the beginning of high school are controlled, in effect controlling previous influences on the level of expectations, it would seem that curriculum in the high school functions only to carry out choices already made.

The remaining theoretical point of view, the dual economy perspective, actually is expected to operate after high school. But if students perceive their chances for employment in terms of the primary or secondary labor markets, and perceive their race or gender as influencing those chances, then certain associations should be present. Also, if the institution is operating to suppress the aspirations of certain groups while enhancing them for others, similar associations should be observable. In brief, the indicators of race and gender, when compared with white males, should show negative associations with educational expectations. Those school indicators that are associated with concentrations of minorities (school size and percent dropouts) should likewise have negative associations with educational expectations. Socioeconomic status should show a positive association. Finally, participation in the vocational education curriculum should show a negative effect and choice of an academic curiculum should show a positive effect. Of the twelve coefficients computed for these variables, only one is significant in the expected direction, SES. Being a white female approaches significant association with educational expectations in the expected direction. The coefficients for Hispanics and blacks, both male and female, are all significant in the opposite direction. The remaining variables appear to be neutral. The weight of the evidence in this sample does not support a dual labor economy explanation of the influence of the high school on educational expectations.

The equation for occupational aspirations is less satisfactory in terms of expectations. The adjusted R^2 is .11 for

these specifications. Clearly some factor or factors that have major influence on occupational aspirations are not included. In considering the results for occupational aspirations in table 3, recall that a high job content is coded 1 and a low job content is coded 5 in the Scoville scale. Therefore the signs are reversed from those observed for the educational expectations data. Keeping this in mind, the human capital explanation finds support in the association of the ASVAB score with job aspiration participation. Both academic curriculum and attitude toward school are neutral rather than showing significant assoication in the expected direction.

When one considers the variables suggested by the status attainment approach, a mixed picture emerges. Socioeconomic status has a significant coefficient, and as it increases, aspired job content increases. Friends' aspirations, however, are not significantly associated with job aspirations. The dropout rate of the school is assocated as expected -- the higher the rate, the lower the aspirations. Attitude toward school appears to be neutral, but as school size increases job aspirations also increase. This latter finding does not have a ready interpretation. Apparently the hypothesis of large school depersonalization, even if it occurs, does not affect job aspirations in a negative way. Just what dynamic is operating is unclear. Overall, there is some support in these data for a status attainment explanation, but certainly other things are operating as well.

Relatively less support for a dual economy explanation emerges. Only two of the twelve related coefficients are

significant in the expected direction. They are those for the SES and the percent dropout variables. None of the three variables representing curriculum approach significance. Being a minority female or a black male is associated with a higher level of job aspirations. Because the SES measure reflects conditions prior to entry into high school, there is very little support in these data for a dual economy explanation in terms of high school channeling on job aspirations.

Implications

The results of this study have policy implications for schools, particularly in the context of the political pressure for expanded academic curricula in the high school. They suggest that the educational and occupational aspirations may be relatively stable in a broad sense by high school, and that policies relating to equity should reflect this condition. The results are reasonably consistent with a human capital explanation, do not consistently support the status attainment point of view, and do not suggest the high school as a dual labor market channeling mechanism. They do not, of course, rule out a status attainment approach, particularly prior to high school.

Nor does the fact that the high school does not appear to be the channeling device rule out the existence of correctable inequities in educational and occupational opportunities. It does suggest that realistic aspirations should be encouraged early, and perhaps carefully reviewed throughout the high school years. Other research recently completed (Campbell, Gardner, and

Winterstein 1984) identifies a substantial number of young people who do not decide until the senior year or thereafter to what education levels they aspire. When these young people decide to go on, there is a high casualty rate among them, at least in terms of obtaining credentials. Encouraging earlier explorations of possible educational accomplishments and at least tentative decisions regarding them should be considered as a matter of policy.

Finally, it would be most useful to develop more extensive models of the choices that are made and outcomes of those choices, incorporating the role of aspirations in those models.

REFERENCES

Borus, Michael, E.; Crowley, Joan E.; Rumberger, Russell W.; Santos, Richard; and Shapiro, David. Youth Knowledge Development Report 2.7. Findings of the National Longitudinal Survey of Young Americans, 1979. Washington, DC: Government Printing Office, 1980.

Bowles, Samuel, and Gintis, Herbert. Schooling in Capitalist America. New York: Basic Books, Inc., 1976.

Campbell, Paul B.; Gardner, John A.; and Winterstein, Paul J. Transition Patterns Between Education and Work. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

Campbell, Paul B.; Orth, Mollie N.; and Seitz, Patricia. Patterns of Participation in Secondary Vocational Education. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981.

Colclough, Glenna, and Horan, Patrick M. "The Status Attainment Paradigm: An Application of a Kuhnian Perspective." The Sociological Quarterly 24, no. 1 (Winter 1983): 25-42.

Ghez, G., and Becker, G. The Allocation of Time and Goods Over the Life Cycle. New York: National Bureau of Economic Research, 1975.

Hodson, Randy, and Kaufman, Robert L. "Economic Dualism: A Critical Review." American Sociological Review 47, no. 6 (December 1982): 727-739.

Rogosa, David R., and Willett, John B. "Demonstrating the Reliability of the Difference Score in the Measurement of Change." Journal of Educational Measurement 20, no. 4 (Winter 1983): 335-343.

Scoville, James G. The Job Content of the U.S. Economy 1940-1970. New York: McGraw-Hill, 1969.

Stanley, Julian C. "Reliability." In Educational Measurement, Second edition, edited by Robert L. Thorndike. Washington, DC: American Council on Education, 1971.